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Attorney Docket: 225/44173
PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: UTE NEGELE ET AL.

Serial No.: 09/058,810 Group Art Unit: 1773

Filed: APRIL 13, 1998 Examiner: Chen, V.

Title: METALLIC SUBSTRATE FOR A VEHICLE BODY

DECLARATION UNDER 37 C.F.R. § 1.132

Commissioner for Patents
Washington, D.C. 20231

Sir:

I, UTE NEGELE, do declare that:

1. I am a co-inventor of the subject matter disclosed and claimed in the above-captioned patent application. I have read, understand, and am familiar with the disclosure of the above-captioned application.

2. I studied chemistry and, in 1992, I received my diploma as a chemist (*Diplom-Chemikerin*) in polymer chemistry from the University of Stuttgart. The subject of my thesis was "Microemulsion Copolymerization of Self-Emulsifying Unsaturated Polyesters and Styrene". I specialized in the chemistry of lacquers and coatings and I did research work at the Research

Institute for Pigments and Lacquers (*Forschungsinstitut für Pigment und Lacke*) in Stuttgart and, in 1995, I obtained my Ph.D. The thesis of my doctorate work was "Synthesis of Polycarboxylic Acids and Their Application as Thin Bond Coatings for Improvement of Wet Bonding Strength of Organic Layers on Steel". Immediately afterwards, I was employed by DaimlerChrysler AG (formerly Daimler-Benz AG) and conducted research on lacquers and coatings at the DaimlerChrysler Research Center (*DaimlerChrysler-Forschungszentrum*) in Ulm, Germany, from 1995 to 1998. (See the paper of U. Flammer, M. Hirsch, and W. Funke entitled "Particle Growth in Copolymerization of Self-Emulsifying Unsaturated Polyesters and Styrene", Macromol. Rapid Commun., Vol. 15, pp. 343-349, 1994.)

3. The application generally is directed to a corrosion-proof bond coating for a metal substrate. It is understood from the specification that the corrosion-proof bond coating results from an addition polymerization reaction involving bismaleimides and/or maleimide-terminated compounds, which may be reacted with each other or with organic compounds comprising terminal polymerizable functional groups, i.e., isolated double bond functional groups. A polymerization reaction including a Diels-Alder reaction (i.e., 1,4-cycloaddition reaction of an 1,3-Diene

and a bismaleimide compound or a maleimide-terminated compound serving as a dienophile) should be avoided since this reaction does not result in a continuous, highly cross-linked polymer layer, but only leads to the formation of oligomers because of the distinct reversibility of the Diels-Alder reaction.

4. Examples of preferred organic compounds for this purpose are provided on page 5 of the specification. With sorbic acid as the lone exception, all the identified organic compounds have a polymerizable single double bond functional group but lack conjugated double bonds. It is understood that these compounds would function as monomers in the addition polymerization reaction with the isolated double bond of the bismaleimides or maleimide-terminated compounds, respectively.

5. Although sorbic acid or (E,E)-2,4-hexadienoic acid does have 1,3-double bonds, this structural feature does not result in a Diels-Alder reaction because the α,β-double bond is conjugated to the carboxylate group and the γ,δ-double bond therefore reacts as an isolated double bond. Further, sorbic acid exists in the (E,E)-conformation and not in the cisoid conformation which is an indispensable requirement for a Diels-Alder reaction.

6. Based on the specification of the application, it is inherent that in forming the claimed corrosion-proof bond coating, an organic compound reacting with the bismaleimides or maleimide-terminated compounds, respectively, generally lacks, or is free of, a conjugated double-bond functional group.

7. At the time the German parent Patent Application No. 197 15 062.4 to the above application was filed, I was, as I am now, in possession of the information discussed in paragraphs 3-6.

8. I declare that the preceding statements which are made of my own knowledge are true and that the preceding statements which are made on information and belief are believed to be true. I am aware that willful false statements and the like are punishable by fine or imprisonment or both under Section 1001 of Title 18 of the United States Code and may jeopardize the validity of the application or any patent issuing thereon.

22.2.2001
DATE

Ute Negele
UTE NEGELE